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Injury-related infant deaths: a state analysis of a public health, health care, policy network

Abstract

Introduction: This research examines a state-level public health, health care, and policy network focused on efforts to reduce unintentional childhood injuries. The network is composed of 12 organizations: four public health, four health care, and four policy.

Methods: A 23-item survey was administered to the 12 organizations between January and June 2015. Analyses were conducted using HyperResearch and UCInet 6.

Results: More organizations worked together on assessment and planning efforts that identify and quantify the nature of at-risk infants in the community and strategies for reducing injury-related infant deaths. The Injury Prevention Center, the most central organization, interacted most frequently with organizations in an effort to reduce unintentional childhood injuries.

Implications: The identification of these relationships, central organization, and the level of importance viewed by the network organizations may help create an integrated network positioned to change and improve service and program delivery as well as policy.

Keywords

public health, policy, networks, childhood injuries

Cover Page Footnote

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INTRODUCTION

Unintentional injuries are a major public health problem in the entire United States (U.S.) as well as in Arkansas. Unintentional injury is the fifth leading cause of infant deaths and the leading cause of preventable deaths in the U.S.¹ In Arkansas, there were 460 injury-related deaths among children aged 0-17 in 2010.² Among the 460 deaths, 57% occurred in children under the age of 1, resulting in great loss of potential years of life.² Arkansas has higher rates of injury-related infant deaths and hospitalization than the nation as a whole.² More children die each year from injuries than from all other diseases combined.¹ In an effort to address this public health issue, the Arkansas Department of Health (ADH) established an Injury Prevention Branch (IPB) focused on reducing unintentional childhood injuries in the state through a variety of evidence-based programs. The IPB works with partners (i.e., public health, healthcare, and policy) throughout the state to educate families on effective childhood injury preventive strategies. Collaborative efforts among public health, health care, and policy have been found to create a more comprehensive understanding of childhood injuries to inform program and policy decisions.³ However, this has not been the case in Arkansas.

Reducing unintentional injuries resulting in infant deaths cannot be accomplished by one public health organization alone; a strong healthcare system and policies need to be in place. Traditionally, public health, health care, and policymakers have worked independently to improve population health. However, as evidenced by injury prevention coalitions, the integration of public health and health care increases public health awareness that injuries are preventable and empower communities to work for change. Further, it is widely believed that injury prevention efforts work best when supported by legislative solutions that can only be implemented by well-informed policymakers.⁴ By working together and creating an integrated system that leverages their strengths, these organizations can conserve resources by reducing duplication and sharing expenses, fostering cooperation between diverse sectors of society, and achieving the capacity to deliver superior care for communities and the nation. However, the lack of a systematic approach has resulted in little continuity between studies or in progress toward a better understanding of the best solutions to reduce injury-related infant death.⁴ Thus, the purpose of this paper is to answer the following questions: What types of networks exist among public health, healthcare, and policy organizations in the state of Arkansas? What role does each organization play in reducing injury-related infant deaths? How valuable is each organization in achieving the mission to reduce injury-related infant death in Arkansas? What are the characteristics of the networks?

METHODS

The survey, a 23-item in-person or telephone interview, was used to collect the network's organizational information, collaboration types, and characteristics such as frequency of interactions, importance, and value and outcomes; it was administered from January to June 2015. Within the Arkansas community, 12 network organizations were interviewed: four public health, four healthcare organizations, and four policy. Respondents indicated their collaborative organizations in four areas on efforts to reduce injury-related infant deaths: Assessment, program

and service delivery, advocacy, and funding advocacy were domains included because they are core public health functions under which essential services are grouped.⁵

For the purpose of this analysis, three measures were used to determine the type of network in each collaboration area: density, centralizations, and most-central agency. Density measures the number of partners. Centralization refers to the overall cohesion or integration of the network. The most-central agency has no formal definition and does not reflect a definitive classification. Instead, the term is generally used to designate organizations that have a central coordinating role.

Five contextual factors were identified from the survey to determine the characteristics of the public health, health care, and policy network aimed to address injury-related infant deaths. The first, *interactions*, is defined as how frequent network organizations worked collaboratively on issues related to injury-related infant deaths. The second, *importance*, is defined as how important each network organization felt other organizations contributed to the work on injury-related infant deaths. The third, *value*, is defined as how valuable network organizations were in achieving a mission to reduce injury-related infant deaths. The fourth, *partnership value*, is defined as how valuable each network organization felt their partnerships were in achieving a mission to reduce injury-related deaths. The last factor, *population served*, is defined as the best guess estimation of the population served or represented by each network organization.

The study also examined the network outcomes as they related to the mission to reduce injury-related deaths. Participants were asked to identify proximal or distal outcomes achieved as a result of their collaborative efforts. For the purpose of analyses, contextual factors responses were dichotomized to *yes* and *no*. HyperResearch was used to code and develop themes, and UCInet 6 was used to calculate network measures.

RESULTS

Most network organizations reported that they worked with a larger number of organizations to conduct assessment and planning activities compared to the other three domains. Network centralization was also higher in assessment and planning activities compared to the other three domains (Table 1).

Table 1. Network-Level Descriptives

Partnership Type	Network Density	Network Centralization	Most-Central Agencies*
Assessment and Planning	0.45	0.66	ACH-IPC and HHI
Program and Service Delivery	0.27	0.55	ACH-IPC and OMHHD
Advocacy and Policy Development	0.25	0.25	AACF and MOD
Application for Funding	0.08	0.21	ADH-IPB and ADH-FHB

Table 1 note: network density and centralization are measured on a scale of 0 to 1, with 0 as the lowest and 1 as the highest.

Assessment or planning: activities to identify and quantify the nature of at risk infants in the community.

Programs or services: activities resulting in the creation of a programs or service to reduce injury related infant mortality.

Advocacy and policy development: activities that educate community members about existing health problems for infants.

Applications for funding: activities involving the efforts of more than one organization to obtain local, regional, state, or national funding.

*See note under Table 2 for an explanation of these initialisms.

The Arkansas Children's Hospital Injury Prevention Center (ACH-IPC) was seen as interacting most frequently with more network organizations on issues related to injury-related infant deaths. ACH-IPC and the ADH-IPB were viewed as the most important network organizations in reducing injury-related infant deaths. Many network organizations felt that their organization was very valuable in achieving the mission to reduce injury-related infant deaths. However, all network organizations felt that their partners were more valuable in achieving the mission.

Additionally, network organizations were asked about the population they served or represented. Fifty percent of the network organizations stated they served or represented more than 30% of the African-American population in the state of Arkansas. More than 30% of the network organizations serve or represent at least 10% of the Hispanic population. The outcomes achieved as a result of collaborative efforts were increased awareness, education of safety measure and policies, and a state-wide reduction in accidental deaths (Table 2).

Table 2. Agency-Level Descriptives

Network members	Frequency of interacting with others	Importance viewed by others	Partnership value	Organization value	Percent of effort (%)
OMHHD	2.33	4.00	4.00	4.00	< 25
AACF	3.17	4.00	3.67	4.00	25
MOD	1.00	4.17	4.00	4.00	<25
AMHC	2.75	3.25	0.00	4.00	25
CHCA	1.50	3.83	3.67	4.00	<25
ADH-IPB	1.60	5.00	4.00	4.00	< 25
ACH-IPC	3.50	5.00	4.00	4.00	100
HHI	2.75	4.33	3.67	4.00	50
ADH-FHB	1.56	4.75	3.33	4.00	< 25
ACH-NWP	2.67	3.75	3.67	4.00	50
ACH-OM	3.25	–	–	4.00	25
UAMS-AP	2.60	4.33	3.67	4.00	<25

AACF, Arkansas Advocates for Children and Family

ACH, Arkansas Children's Hospitals

ACH-IPC, Arkansas Children's Hospital Injury Prevention Center

ACH-NWP, Arkansas Children's Hospital Natural Wonders Program

ADH-FHB, Arkansas Department of Health, Family Health Branch

ADH-IPB, Arkansas Department of Health, Injury Prevention Branch

AMHC, Arkansas Minority Health Commission

CHCA, Community Health Centers of Arkansas

HHI, Hometown Health Initiative

MOD, March of Dimes

OMHHD, Office of Minority Health and Health Disparities

UAMS-University of Arkansas for Medical Sciences; AP, Angels Project

Table 2 note: The descriptive analysis includes means and the percent of effort each organization dedicated to reducing injury-related infant mortality in their community. The descriptive analysis is measured on a scale from 1 to 5 with 1 being the least and 5 being highest. The percent of efforts is a measure of 0 to 100 percent and indicated by each organization as the percent of effort dedicated to reducing injury related infant deaths.

IMPLICATIONS

Limited studies have focused on an examination of state-level public health, healthcare, and policy networks that coordinate activities to address injury-related infant deaths. This state-level study reveals unique characteristics that influence a network as it relates to injury-related deaths in Arkansas. First, network organizations are most likely to collaborate on assessment and planning activities. These network organizations focus their efforts on activities to identify and quantify the nature of at-risk infants and strategies for reducing injury-related infant deaths. Second, network centralization was higher in assessment and planning activities. These organizations were more likely to develop cohesion around activities focused on strategies to reduce injury-related infant deaths. Third, the most central agency in assessment and planning was the IPC. Additionally, the IPC was the agency with the most frequent interactions, viewed as highly important, and very valuable in the work to address injury among infants. The IPC is the only multi-faceted injury prevention program in Arkansas that works with partners throughout the state to educate families on preventive strategies. Additionally, the IPB allocated the most effort to reduce injury-related infant deaths compared to other network organizations. However, most organizations indicated that their organization was very valuable in the network's efforts to reduce injury-related infant deaths. Identifying these relationships and the level of importance viewed by the network organizations may help create an integrated network positioned to change and improve service and program delivery as well as policy. One limitation of the study was the small sample size, which does not allow for multi-variable analysis. Future studies should explore how the network formed, sustained organization's investment and commitment to the network, and other types of organizations that are a part of the network.

Summary Box

What is already known on the topic? Past research reveals the type of partnerships that exist between public health and healthcare organization at a national level. Certain characteristics, such as density and centrality, have been used to identify the type of partnerships that exist. Contextual factors have been found to be associated with outcomes.

What is added by this report? This study provides a state-level analysis focused on collaborative efforts to address unintentional injuries among infants. Data were collected from public health, healthcare, and policy organizations to further examine the type of network and measure the importance and value of existing network organizations. This study presents a new type of network organization (policy) and characteristics to measure network activities: importance, value, and the most central network organization in the public health domains.

What are the implications of public health practice/policy/research? It is important for both state and local public health practitioners to understand the collaborative efforts to reduce injury related infant deaths and how this approach can address social, behavior, and health risk factors. It is also important for network members to understand the value of their organization in the network, which may assist in the development of future strategies and policy development to improve outcomes. Additionally, recognizing the influence of the central player may help organizations align their goals and policy development around the most pressing issues. Finally, understanding the influence of public health, health care, and policy partnerships may help practitioners and policymakers identify collaborative strategies to reduce injury related infant deaths.

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